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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/113,484 07/10/98 BUCHANAN

R M-5955-US

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WM01/1219

EXAMINER

LEE, R

ART UNIT

PAPER NUMBER

2613

DATE MAILED: 12/19/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/113,484

Applicant(s)
Buchanan et al

Examiner
Richard Lee

Group Art Unit
2613



☐ Responsive to communication(s) filed on _____

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-36 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☒ Claim(s) 1, 5, 7-9, 16-18, 22-27, and 34 is/are allowed.

☒ Claim(s) 2-4, 6, 10-15, 19-21, 28, 32, 33, 35, and 36 is/are rejected.

☒ Claim(s) 29-31 is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2, 3

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 2613

1. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.
2. Figures 1 and 2 should be designated by a legend such as "Prior Art" (see pages 1-3 of the Specification) in order to clarify what is applicant's invention. (see M.P.E.P. 608.02(g)).
3. The drawings are objected to because:
 - (1) elements 114 and 118 of Figure 1 of the drawings have not been identified in the Specification;
 - (2) elements 200, 212, and 220 of Figure 2 of the Specification have not been identified in the Specification; and
 - (3) blocks 680, 685, 690, and 695 have not been identified in the Specification.Correction is required.
4. The disclosure is objected to because of the following informalities:
 - (1) at page 2, line 24 of the Specification, "5,308,22" should be changed to "5,308,222" for correct reference to the patent;
 - (2) at page 6, line 16 of the Specification, after "detector", "320" should be changed to "360" in order to agree with Figure 3 of the drawings; and
 - (3) at page 12, line 29 of the Specification, "Block 640" should be changed to "Block 650" in order to agree with Figure 6 of the drawings.

Appropriate correction is required.

Art Unit: 2613

5. Claims 2-4, 6, 10-15, 19-21, 32, 35, and 36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For examples:

(1) claim 2, line 2, after “polar”, “coordinate” should be properly inserted in order to provide proper antecedent basis for the same as specified at claim 1, line 2;

(2) claim 6, line 2, after “polar”, “coordinate” should be properly inserted in order to provide proper antecedent basis for the same as specified at claim 1, line 2;

(3) claim 10, line 1, “and” should be changed to “an” for clarity;

(4) claim 11, line 1, “an” should be changed to “a” for clarity;

(5) claim 15, line 1, after “which”, “is” should be properly inserted for clarity;

(6) claim 19, line 1, “consistent” should be deleted for clarity;

(7) claim 20, line 1, “an” should be changed to “a” for clarity;

(8) claim 21, line 1, “an” should be changed to “a” for clarity;

(9) claim 32, line 2, “contains” should be deleted for clarity; and

(10) claim 35, line 7, is “a pattern recognition module” the same as that specified at claim 34, line 13? If so, then “a” should be changed to “said”.

Art Unit: 2613

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 28 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bacchi et al of record (5,646,776) in view of Broude et al (5,625,193)

Bacchi et al discloses a compact specimen inspection station as shown in Figure 2, 3, 4A, 4B, 6, and 7, and substantially the same measuring device as claimed in claims 28 and 33, comprising substantially the same coordinate stage (i.e., 30 of Figures 1 and 4B, and see column 8, lines 28-43) including a rotatable platform for mounting of a sample; an alignment system including an edge detector and a processing system that identifies a position of the sample from measurements that the edge detector takes while the coordinate stage rotates the sample (see column 6, line 63 to column 8, line 43); a measurement system for measuring a physical property of a portion of the sample that the coordinate stage moved into a field of view of the measurement system (see column 4, lines 5-48, column 5, lines 14-32, column 8, lines 28-43); an imaging system for obtaining an image of a portion of the sample that the coordinate stage moved into a field of view of the imaging system (i.e., as provided by camera 48, see column 4, lines 5-48, column 5, lines 14-32, column 8, lines 28-43); and wherein the alignment system further comprises a pattern recognition module that identifies a feature in the image and determines a position of the sample (see column 8, lines 28-43).

Art Unit: 2613

Bacchi et al does not particularly disclose, though, a polar coordinate stage including a rotatable platform for mounting of a sample as well as rotating the sample as claimed in claim 28. However, Broude et al discloses an optical inspection system as shown in Figures 1 and 8, and teaches the conventional use of a polar coordinate stage including a rotatable platform for mounting of a sample and rotating the sample for inspection of the sample (see 112, 112, 116, 120 of Figure 8, column 8, lines 27-57, column 9, lines 19-32). Therefore, it would have been obvious to one of ordinary skill in the art, having the Bacchi et al and Broude et al references in front of him/her and the general knowledge of the rotation of wafers and/or object samples for inspection, would have had no difficulty in providing the polar coordinate stage as taught by Broude et al in place of the XY coordinate stage of Bacchi et al for the inspection system of Bacchi et al so that the sample wafer may be inspected while rotated in the polar coordinate stage for the same well known purposes as claimed.

8. Claims 29-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 2-4, 6, 10-15, 19-21, 35, and 36 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

10. Claim 32 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Art Unit: 2613

11. Claims 1, 5, 7-9, 16-18, 22-27, and 34 are allowed.
12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bacchi et al (5,331,458; 5,446,584; and 5,852,413), Broude et al (5,814,829), Chung et al, and Yamaguchi et al disclose various types of inspection systems.

13. The following is an examiner's statement of reasons for allowance:

Claims 1-27 and 34-36 are considered allowable over the prior art of record because the prior art of record does not suggest, disclose, or teach (a) a device comprising particularly a polar coordinate stage that includes a linear drive and a rotatable platform mounted on the linear drive, wherein an object to be imaged is placed on the rotatable platform; an image rotator; and a control system coupled to the polar coordinate stage and the image rotator, wherein the control system controls the image rotator and causes the image rotator to rotate an image to compensate for rotation of the rotatable platform and preserve orientations of features in the image as claimed in claim 1; (b) a method for viewing an object, comprising particularly mounting the object on a polar coordinate stage; using the polar coordinate stage to move the object; and rotating the image of the object as the object moves so that features in the image retain a fixed orientation while the object rotates as claimed in claim 27; and (c) a measuring method comprising particularly mounting a sample on a polar coordinate stage, wherein the sample as mounted has a position known to a first accuracy; prealigning the sample by determining the position of the sample from the edge locations, wherein the prealigning determines the position of the sample to a

Art Unit: 2613

second accuracy; using the polar coordinate stage to move the sample so that a view area of an imaging system contains a first feature; and rotating an image formed by the imaging system to compensate for rotation of the sample by the polar coordinate stage as claimed in claim 34.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

14. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 308-9051, (for formal communications intended for entry)

Art Unit: 2613

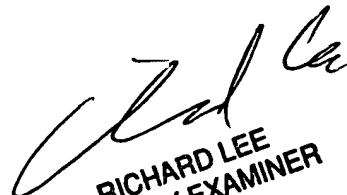
Or:

(703) 308-6306 (for informal or draft communications, please label
"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA., Sixth Floor (Receptionist).

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Lee whose telephone number is (703) 308-6612.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-9600.


RICHARD LEE
PRIMARY EXAMINER

Richard Lee/rl

12/13/00

